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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/831,615 | 04/29/2003 | Bruno Wittwer | 19724-87004 | 5847 |

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| EXAMINER | |
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| SAYOC, EMMANUEL | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3746 | |

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/831,615 | WITTWER, BRUNO | |
| | Examiner | Art Unit | |
| | Emmanuel Sayoc | 3746 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *21-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 6/6/05. These drawings are accepted.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a). .

4. Claims 21-26, and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck (U.S. 3,184,124), and in further view of Mitchell (U.S. 1,756,795).

Beck in Figures 1 and 2, teach a piston pump comprising a piston (41) located in a housing (33) having an inlet (38) and an outlet (25). The piston (41) is remote to the liquid outlet. The piston comprises a piston body (41), a valve means (44) provided in the piston body (41), and seal means (by virtue of a clearance seal) provided between the piston body (41) and the housing (33) for dividing the housing into a first chamber (below the piston) and a second chamber (above the piston). The valve means (44) controls passage of liquid from the first chamber through the piston (41) and into the second chamber. A drive shaft (20) is operatively connected to the piston body (41). The drive shaft is shaped and configured such that substantially equal volumes of liquid are displaced on initial and return strokes of the drive shaft.

Beck in Figures 1 and 2, teaches a well-known housing, motor, crank, drive shaft, and piston configuration applied to an analogous valved piston pump. The pump device contains a support (1, 4), a motor (11) mounted to the support (1, 4, 5, 6), a crank (14) driven by the motor (11), and a crank arm (18) operatively connected to the crank (18) and to the pump shaft (20). The pump further contains a longitudinally extending member (22) provided on the support (1, 4, 5, 6) and extending substantially longitudinally parallel to the direction of reciprocal motion of the drive shaft (20). Pin (19) constitutes constraining means provided at the operative connection of said crank

arm (18) and the drive shaft (20). The constraining means (19) is constrained by said longitudinally extending member (22) in that the pin and the joints it connects are confined to reciprocating movement within the longitudinally extending member (22). The pin constraining member (22) is movable within the longitudinally extending member (22). The constraining means (19) and the longitudinally extending member (22) constrain movement of the crank arm (18), together with the pin (19) and the shaft (20) end, such that said crank arm (18) does not impart any substantial movement to said drive shaft (20) in a direction sideways to the direction of reciprocal motion of said drive shaft (20). The device also includes a pump mechanism (33, 34, 40, 41, 44).

Beck sets forth a device as described above, which is substantially analogous to the claimed invention. The Beck device differs from the claimed invention in that there is no explicit teaching of the pump having a cross-sectional area of the drive shaft (20) approximately the same as cross-sectional area between the drive shaft and the housing. Mitchell teaches a piston pump comprising a piston (35, 34, 29) located in a housing (15) having an inlet (20) and an outlet (above the piston clearly present, not shown). The piston (35, 34, 29) is remote to the liquid outlet. The piston comprises a piston body (29, 35), a valve means (32) provided in the piston body (29, 35), and seal means (by virtue of a clearance seal) provided between the piston body (29, 35) and the housing (15) for dividing the housing into a first chamber (below the piston) and a second chamber (above the piston). The valve means (32) controls passage of liquid from the first chamber to through the piston (35, 34, 29) and into the second chamber. A drive shaft (27) is operatively connected to the piston body (29,35). The drive shaft is

shaped and configured such that substantially equal volumes of liquid are displaced on initial and return strokes of the drive shaft. With a close examination of the drive shaft (27) reveals that its cross-sectional area is approximately equal to the cross-sectional area between the drive shaft (27) and the housing (15). The Mitchell pump, as stated in column 1, lines 1-23, allows for the proper channeling of sand and debris, and the removal of pump elements, such as the valve seat to remove sand or the like trapped in the pump. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the Beck device by, incorporating the piston pump arrangement, as taught by Mitchell, in order to advantageously allow for the proper channeling of sand and debris, and the removal of pump elements, such as the valve seat to remove sand or the like trapped in the pump to ensure ease in pump maintenance and pump flow efficiency.

In the combination, and in use, a first stroke of the drive shaft (Beck 20) causes liquid to be displaced from the first chamber into the second chamber through the valve means (Mitchell 24, 32) and liquid is discharged from the second chamber via said liquid outlet (Beck 25). In a second stroke of said drive shaft (20), the valve means (Mitchell 24, 32) is closed and liquid is displaced from the second chamber and discharged from the second chamber via the liquid outlet (Beck 25), and wherein substantially equal volumes of liquid are displaced in the first stroke and said second stroke of said drive shaft.

The constraining means (19) constitutes a wheel movable within the longitudinally extending member (22) as the pin rotates within the slot of the crank arm (18) and the shaft (20) within the longitudinally extending member (22).

The longitudinally extending member (22) comprises a channel member (23).

With respect to the exact percentage of the drive shaft (20) cross-sectional area in relation to that of the housing, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136.

The liquid outlet (25) is provided adjacent a closed end (closed end housing 4) of said housing remote from the piston, the closed end of the housing (4, 22, 33) has aperture (21) provided therein arranged to receive the drive shaft (20) therethrough, and further seal means (see packing seals in 21) provided between the drive shaft (4) and the closed end (4).

The examiner takes official notice that disc valves, with a disc valve means were well known in the art as a type of check valve.

The piston (Mitchell 35, 34, 29) is provided with apertures (about valves 24, 32) such that liquid is able to pass from the first chamber via said valve means (24, 32) into the piston (Mitchell about valves 24, 32) and through the apertures into the second chamber.

The Beck constraining means (19) is connected to the crank arm (19).

The drive shaft (Beck 20) extends through a stuffing box means (Beck, see packing material in bore 21) and is connected to said crank arm (Beck 18).

5. Claims 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck, as modified by Mitchell, as applied to claim 26, and in further view of Beckerer (U.S. 4,301,826).

Beck, as modified by Mitchell, set forth a device as described above, which is substantially analogous to the claimed invention. The Beck, as modified by Mitchell, device differs from the claimed invention in that there is no explicit teaching of the shaft being hollow. Within the art the use of hollow shafts was well known for reducing weight in the moving shaft, and also, in certain types of pumps, for allowing fluid to pass therethrough. Beckerer in Figure 2 and 3 teaches a pump with a non-fluid flowing hollow shaft. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to further modify the Beck, as modified by Mitchell, device by incorporating the hollow shaft, as taught by Beckerer, in order to reduce weight in the moving shaft. Air filling the hollow shaft constitutes a buoyant substance.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck, as modified by Mitchell and Beckerer, as applied to claim 27, and in further view of Hoffman et al. (U.S. 4,592,421).

The Beck, as modified by Mitchell and Beckerer, device differs from the claimed invention in that there is no explicit teaching of the hollow shaft defining a plurality of cavities. In Figure 1 of Hoffmann et al., coupling spacers (10) are provided to extend the suction pipe/shaft (5) to extend into the depths of the well. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to further modify the Beck, as modified by Mitchell and Beckerer, device by incorporating the plurality of shaft extensions, as taught by Hoffman et al., in order to extend the pump shaft in applications where the supply fluid is deep within a well or remote location. In such a combination, coupling a plurality of hollow shaft sections would produce a plurality of cavities.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck, as modified by Mitchell, Beckerer, and Hoffman et al., as applied to claim 29, and in further view of Harbison (U.S. 3,535,056).

Mitchell, Beckerer, and Hoffman et al. set forth a device as described above, which is substantially analogous to the claimed invention. The Mitchell, Beckerer, and Hoffman et al., device differs from the claimed invention in that there is no explicit teaching of the details of the conduit connector as described in the claimed invention. Harbison, in Figure 1-b, teaches an analogous piston well pump assembly with a lower rod (26) and an upper rod (24) connected by a double male threaded ended connector (25). The exterior sides of the connector (25) are contiguous with the shaft conduit (24, 26) exterior surfaces. This shaft connector (25) was a common shaft and piping

extension connector, which allows for modularity and ease in assembling and disassembling the extended shaft conduits. Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to further modify the Mitchell, Beckerer, and Hoffman et al. device by, incorporating the shaft connector as taught by, Harbison in order to advantageously allow for modularity and ease in assembling and disassembling the extended shaft conduits. The contiguous surfaces in this type of connector also reduces fluid resistance flowing along the shaft for greater pump efficiency.

### *Response to Amendment*

8. The objection to the title and the specification is hereby withdrawn in view of applicant's amendments. The substitute specification is recommended for entry.

9. The objections of claims, 1-20, are hereby withdrawn in view of applicant's amendments.

10. The rejections of claims, 1-20, under 35 U.S.C. 112 2$^{nd}$ paragraph are hereby withdrawn in view of applicants amendments.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to piston pumps.

U.S. Pat. 2,460,176 to Knott – teaches a well pump analogous to that of the claimed invention.

U.S. Pat. 3,814,553 to Hubschmann – teach a well pump analogous to that of the claimed invention.

U.S. Pat. 2,160,811 to Adams – teach a well pump analogous to that of the claimed invention.

U.S. Pat. 2,797,642 to Bloudoff – teach a well pump analogous to that of the claimed invention.

U.S. Pat. 2,465,600 to Munk – teach a well pump analogous to that of the claimed invention.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on (571) 272-4444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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